

U.S. Small Business Administration



**SMALL BUSINESS
INNOVATION
RESEARCH PROGRAM
(SBIR)**

ANNUAL REPORT – FY 2001

**Office of Technology
U.S. Small Business Administration**

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OVERVIEW

The Small Business Innovation Development Act of 1982, Public Law 97-219, directs the U.S. Small Business Administration (SBA) to establish policy for monitoring, evaluating, and reporting on accomplishments of the Small Business Innovation Research (SBIR) program. This is the 19th annual report on the SBIR program, which summarizes program activities and results for FY 2001.

Public Law 97-219 was signed on July 22, 1982. Congress reauthorized the SBIR program in 1986, and again in 1993, extending it to October 1, 2000. This reauthorization also increased the percentage of research and development (R&D) funds that participating Federal agencies must direct to small businesses under the program from 2 percent to 2.5 percent. On December 21, 2000, Public Law 106-554 was signed reauthorizing the SBIR program through September 30, 2008.

In contemplating the program's reauthorization of 1993, Congress concluded that technological innovation creates jobs, increases productivity and economic growth, and serves as a counter force to inflation and the Nation's balance-of-payments deficit. Congress also found that while the small business sector is the Nation's principal source of significant innovation, large businesses, universities and government laboratories historically have conducted the vast majority of federally funded R&D.

In FY 2001, the SBIR program continued to demonstrate that with focused program support from the Federal Government, small high-tech firms could convert basic ideas and research into commercial products. In doing so, these firms increase national productivity, and contribute to American leadership in the competitive international marketplace. This partnership between the Government and private sector has proved to be remarkably effective.

Over a 19-year period, Federal agencies participating in the SBIR program have awarded more than 64,000 awards worth over \$11 billion to thousands of small high-tech companies. The innovative small businesses that have received awards have applied their ingenuity and inventiveness to fulfilling Federal R&D requirements and to creating profitable commercial products. These products encompass a wide range of industries and technologies, from the familiar to the exotic.

SBIR program highlights since FY 1983 include the following:

- Successful commercial sales arising from SBIR awards come from an ever-broadening range of technologies and industries such as laser manufacture, medical research, robotics and military decision-making.
- New products and techniques emerging from SBIR awards support America's competitiveness worldwide, and improve the lives of people here and abroad.
- Surveys by SBA and the General Accounting Office indicate that at least 25 percent of SBIR award recipients have reported commercial success of SBIR-supported product(s) within 4 years of receiving a Phase II award.
- Small disadvantaged and women-owned businesses have received a significant portion of SBIR awards.

As the company profiles and statistics in this report suggest, an increasing number of firms are succeeding in commercializing new products, processes and services derived from SBIR awards.

In administering and managing the SBIR program, SBA's Office of Technology encourages small high-tech companies to respond to solicitations from Federal agencies participating in the program. A

number of small businesses continue to win multiple awards reflecting their persistent spirit of innovation.

INTRODUCTION

The Rationale

The rationale for enactment of Public Law 97-219 was to give small, innovative enterprises a greater role in federally-funded R&D. The goal was to develop the Nation's industrial technology base for creative technical achievement, and to expand markets for ideas developed by America's small high-tech businesses.

Public Law 97-219 recognized that small businesses -- especially technically oriented firms -- were responsible for most new products, processes and technologies. It also recognized that these firms were particularly adept at turning R&D activities into viable commercial products. In many cases, the only thing such small firms needed to succeed was financial assistance.

The SBIR program has yielded many small business successes. These successful businesses have created many new jobs, expanded the Nation's tax base, and bolstered America's economic viability and productivity.

Legislative Background

Public Law 97-219 requires that, beginning in FY 1983, each Federal agency having an extramural research and research and development (R/R&D) budget in excess of \$100 million in FY 1982, or any year thereafter, set aside a portion of such requirements for competitive award under the SBIR program. Through a 4-year phase-in period, civilian agencies were required to increase the percentage of their R/R&D set-asides from 0.2 percent in FY 1983 to 1.25 percent in FY 1986. The Department of Defense was allowed 5 years to phase in its increase from 0.01 percent in FY 1983, to 1.25 percent in FY 1987.

The Small Business Research and Development Enhancement Act of 1992 (Public Law 102-564) extended the SBIR program to October 1, 2000. It also incrementally increased the percentage of annual extramural R/R&D funds that participating Federal agencies must direct to small high-tech firms from 1.25 percent to 2.5 percent. Public Law 106-554 extended the SBIR program through September 30, 2008.

Public Law 102-564 also sought to:

- Expand and improve the SBIR program.
- Emphasize increased private-sector commercialization of technology developed under the program.
- Increase small business participation in Federal research and development.
- Improve dissemination of SBIR program information to encourage participation of women-owned and socially and economically disadvantaged small businesses.

Participating Federal Agencies

Pursuant to Public Law 97-219, the following Federal agencies are required to participate in the SBIR program:

- Department of Agriculture (DOA)
- Department of Commerce (DOC)
- Department of Defense (DOD)
- Department of Education (ED)
- Department of Health and Human Services (HHS)
- Department of Transportation (DOT)
- Environmental Protection Agency (EPA)
- National Aeronautics and Space Administration (NASA)
- Department of Energy (DOE)
- National Science Foundation (NSF)

SBIR Program Structure

The SBIR program is structured in three phases:

- Phase I: Awards up to \$100,000 are for research projects designed to evaluate the feasibility, and the scientific and technical merit of an idea. Phase I awards are for a period of up to 6 months.
- Phase II: Phase I projects with the most potential are funded for further development of the proposed idea. Phase II funding of up to \$750,000 may be awarded over a period of up to 2 years.
- Phase III: No SBIR funds may be used in this phase. Private-sector investment and support must be used to bring an innovation to market. However, as appropriate, Phase III funds may include follow-up contracts with Federal agencies for production of Phase II innovations.

SBA Authorities and Responsibilities

SBA has authority and responsibility to:

- Develop, coordinate, issue and update a policy directive for the Federal government-wide conduct of the SBIR and R/R&D Goaling Programs.
- Develop and administer an information and outreach program for the SBIR program.
- Develop and maintain a source and information file of interested small businesses.
- Develop, coordinate, publish and disseminate SBIR Pre-Solicitation Announcements.
- Survey, monitor and report on each agency's SBIR program.
- Report at least annually to Congress on each agency's SBIR program and on

SBA's monitoring activities.

- Coordinate private-sector commercialization of SBIR innovations.
- Obtain information on the current National Critical Technologies.

Authorities and Responsibilities for Participating Agencies

Each participating agency has the authority and responsibility to:

- Determine the categories of projects to include in its SBIR program.
- Issue SBIR solicitations in accordance with a schedule determined cooperatively with the SBA.
- Unilaterally determine research topics within each SBIR solicitation, giving special consideration to broad research topics and to topics that further one or more National Critical Technologies.
- Receive and evaluate proposals resulting from SBIR solicitations.
- Select awardees for SBIR funding agreements.
- Ensure that funding agreements under the SBIR program include provisions setting forth the respective rights of the United States and small businesses with regard to intellectual property rights and follow-on research.
- Administer SBIR funding agreements (or delegate such administration to another agency).
- Make payments to SBIR award recipients based on progress toward or completion of the funding agreement requirements.
- Submit annual reports on the SBIR and R/R&D goaling programs to the SBA.

P ROGRAM SERVICES

In setting SBIR program policy and in monitoring and evaluating the program, the SBA seeks to simplify and standardize grant and contract award procedures, minimize paperwork, and encourage small companies owned by women, minorities and disadvantaged individuals to participate in the program. The SBA also conducts an ongoing national information and outreach campaign, and ensures that participating agencies conform to SBIR policy directives.

The SBIR solicitation process minimizes administrative burden. It standardizes timely receipt and review of proposals, peer review, and adherence to cost principles. Also, it establishes guidelines for proprietary-information, selection of awardees, data-rights retention, title to Government property, and cost sharing.

Pre-Solicitation Announcements

The SBA's SBIR Pre-Solicitation Announcement to small businesses presents basic program solicitation information in a succinct and understandable manner. Each quarterly announcement provides complete information on all SBIR activity for that quarter, eliminating the need for small businesses to track the activities of each participating agency individually. The announcements are available from the SBA's electronic bulletin board, SBA On-Line, and on the Internet. The announcements provide small businesses with--

- A brief statement of each research topic, listed by participating agency;

- The opening and closing dates of each solicitation;
- An estimate of the number of awards to be made under each solicitation;
- The party to contact for a copy of the agency's solicitation; and,
- A master schedule of solicitation opening and closing dates for all participating agencies.

Other SBIR information available from SBA includes award winners from the latest available fiscal year and the SBIR Proposal Preparation Handbook.

Outreach

SBA field representatives and public and private organizations play significant roles in dissemination of SBIR program information. During FY 2001, SBA worked with many organizations in conducting SBIR seminars and conferences, providing information, materials and speakers.

Another form of outreach involves briefing officials of foreign governments. During FY 2001, foreign interest in the SBIR program continued to grow. SBIR-type programs are in place in the United Kingdom and other European countries.

P PROGRAM DATA

Reporting Requirements for SBIR

To monitor and report on the participating agencies' SBIR programs, SBA has established a reporting base to compare against each agency's budget data. To determine extramural obligations as a base for the size of each agency's SBIR program, Public Law 97-219 provides a definition of research and development.

It should be noted that a 3-year budget cycle is used for establishing extramural R/R&D obligations. Within any given year, a participating agency's initial estimate can change due to congressional action on that agency's R/R&D budget. To ensure proper implementation of the program, each agency establishes an estimated budget as a basis for operations during the year. The SBA uses a system of deficits and credits to make the necessary adjustments during the course of the budget cycle. In this way, SBA determines whether agencies comply with SBIR set-aside requirements.

FY 2001 Summary

There have been long-term upward trends in the number of Phase I, Phase II and total SBIR awards.

- In FY 2001, the 10 agencies participating in the SBIR program released a total of 14 Phase I solicitations. The Department of Health and Human Services, the Department of Defense, the Department of Commerce and the Environmental Protection Agency each released two solicitations; the other six agencies released one each.

- Participating agencies received 16,666 Phase I proposals from small high-tech enterprises. Agencies subsequently made 3,215 Phase I awards, representing 19.3 percent of proposals received.
- A total of 2,566 Phase II proposals were received by participating agencies, resulting in 1,533 awards. These awards represented 60 percent of Phase II proposals received.
- In total, 19,232 Phase I and Phase II proposals were received in FY 2001. Phase I and Phase II awards totaled 4,748, representing 25 percent of the total number of proposals received.

(See Program Data Chart)

SBIR Program Data

Fiscal Year 2001 SBIR Agency Obligations Summary (dollars in thousands)

| | DOA | DOC | DOD | DOE | DOT | ED | EPA | HHS | NASA | NSF | TOTAL |
|--------------------------------------|---------|---------|------------|-----------|---------|---------|---------|------------|-----------|-----------|------------|
| Agency Extramural Budget | 649,781 | 306,079 | 25,405,728 | 3,520,929 | 146,929 | 262,265 | 231,513 | 16,830,934 | 4,190,800 | 2,800,000 | 54,344,958 |
| Agency SBIR Budget | 16,244 | 6,913 | 638,164 | 87,804 | 3,673 | 6,773 | 5,787 | 420,773 | 104,770 | 72,000 | 1,362,901 |
| Dollars Obligated | 15,686 | 7,034 | 652,166 | 87,316 | 5,964 | 6,773 | 6,052 | 420,156 | 105,680 | 72,173 | 1,379,000 |
| Percent of SBIR to Extramural Budget | 2.41% | 2.30% | 2.57% | 2.48% | 4.06% | 2.58% | 2.61% | 2.50% | 2.52% | 2.58% | 2.54% |
| Deficit/Surplus | -558 | 121 | 14,002 | -488 | 2,291 | 0 | 265 | -617 | 910 | 173 | 16,099 |

Fiscal Year 2001 Award Profile (dollars in thousands)

| | DOA | DOC | DOD | DOE | DOT | ED | EPA | HHS | NASA | NSF | TOTAL |
|--|-------|-------|---------|--------|-------|-------|-------|---------|--------|--------|---------|
| Total Phase I Awards | 90 | 27 | 1,309 | 212 | 9 | 39 | 40 | 985 | 287 | 217 | 3,215 |
| Minority/Disadvantaged Phase I Awards | 6 | 5 | 261 | 30 | 3 | 5 | 2 | 30 | 60 | 34 | 436 |
| Total Phase II Awards | 37 | 18 | 702 | 99 | 14 | 16 | 13 | 407 | 139 | 88 | 1,533 |
| Minority/Disadvantaged Phase II Awards | 7 | 2 | 144 | 10 | 1 | 0 | 1 | 12 | 28 | 7 | 212 |
| Total Phase I Dollars Awarded (\$) | 6,089 | 1,896 | 114,280 | 21,003 | 888 | 2,325 | 2,849 | 126,129 | 19,980 | 21,655 | 317,094 |
| Minority/Disadvantaged Phase I Dollars (\$) | 413 | 375 | 23,132 | 2,994 | 289 | 300 | 140 | 3,683 | 4,170 | 3,391 | 38,887 |
| Total Phase II Dollars Awarded (Obligations) | 9,597 | 5,137 | 461,469 | 66,313 | 5,076 | 4,448 | 2,924 | 286,161 | 85,700 | 50,518 | 977,343 |
| Minority/Disadvantaged Phase II Dollars (\$) | 1,882 | 473 | 97,667 | 6,980 | 245 | 0 | 225 | 8,496 | 9,900 | 3,299 | 129,167 |
| Average Amount for Phase I Awards (\$) | 68 | 70 | 87 | 99 | 99 | 60 | 71 | 128 | 70 | 100 | 99 |

Fiscal Year 2001 Agency Solicitation Profile

| | DOA | DOC | DOD | DOE | DOT | ED | EPA | HHS | NASA | NSF | TOTAL |
|--|-------|-----|--------|-------|-----|-------|-------|-------|-------|-------|--------|
| Number of Solicitations Released | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 1 | 1 | 14 |
| Number of Research Topics in Solicitations | 9 | 16 | 801 | 45 | 24 | 11 | 13 | 144 | 27 | 4 | 1,094 |
| Number of Copies Distributed | 1,000 | 0 | 32,200 | 3,100 | 250 | 1,500 | 4,000 | 141 | 0 | 0 | 42,191 |
| Number of Phase I Proposals Received | 480 | 253 | 7,292 | 875 | 134 | 278 | 787 | 3,472 | 1,847 | 1,248 | 16,666 |
| Number of Phase II Proposals Received | 37 | 42 | 933 | 178 | 17 | 48 | 76 | 799 | 267 | 169 | 2,566 |
| Number of Phase I Awards | 90 | 27 | 1,309 | 212 | 9 | 39 | 40 | 985 | 287 | 217 | 3,215 |
| Number of Phase II Awards | 37 | 18 | 702 | 99 | 14 | 16 | 13 | 407 | 139 | 88 | 1,533 |

Dollars obligated can include modifications to previous year's awards: DOD \$76,416K
HHS \$7,866K and EPA \$280K

**Table 2: Number of SBIR Awards --
FY 1983 through FY 2001**

| Fiscal Year | Phase I | Phase II | Totals |
|-------------|---------|----------|--------|
| 83 | 686 | - | 686 |
| 84 | 999 | 338 | 1,337 |
| 85 | 1,397 | 407 | 1,804 |
| 86 | 1,945 | 564 | 2,509 |
| 87 | 2,189 | 768 | 2,957 |
| 88 | 2,013 | 711 | 2,724 |
| 89 | 2,137 | 749 | 2,886 |
| 90 | 2,346 | 837 | 3,183 |
| 91 | 2,553 | 788 | 3,341 |
| 92 | 2,559 | 916 | 3,475 |
| 93 | 2,898 | 1,141 | 4,039 |
| 94 | 3,102 | 928 | 4,030 |
| 95 | 3,085 | 1,263 | 4,348 |
| 96 | 2,841 | 1,191 | 4,032 |
| 97 | 3,371 | 1,404 | 4,775 |
| 98 | 3,022 | 1,320 | 4,342 |
| 99 | 3,334 | 1,256 | 4,590 |
| 00 | 3,166 | 1,330 | 4,496 |
| 01 | 3,215 | 1,533 | 4,748 |
| Total | 46,858 | 17,444 | 64,302 |

There have been parallel long-term upward trends in the dollar value of Phase I, Phase II and total SBIR awards.

- During FY 2001, participating agencies awarded \$1.3 billion through the SBIR program.
- FY 2001 Phase I awards totaled \$317 million.
- Phase II awards aggregating \$977 million were made in FY 2001.
- In FY 2001, minority/disadvantaged-owned firms received 648 awards totaling \$168 million.

Please see Table 3. (Note: The overall total does not include \$84.6 million in modifications. In awarding funding agreements under Phase II, agencies utilize various acquisition methods of obligation and funding. (For purposes of consistency, the acquisition data in this report reflect only actual obligations during FY 2001.)

**Table 3: Value of SBIR Awards--
FY 1983 through FY 2001
(in millions of dollars)**

| Fiscal Year | Phase I | Phase II | Totals |
|-------------|---------|----------|----------|
| 83 | \$ 44.5 | \$ | \$ 44.5 |
| 84 | 48.0 | 60.4 | 108.4 |
| 85 | 69.1 | 130.0 | 199.1 |
| 86 | 98.5 | 199.4 | 297.9 |
| 87 | 109.6 | 240.9 | 350.5 |
| 88 | 101.9 | 248.9 | 389.1 |
| 89 | 107.7 | 321.7 | 431.9 |
| 90 | 118.1 | 341.8 | 460.7 |
| 91 | 127.9 | 335.9 | 483.1 |
| 92 | 127.9 | 371.2 | 508.4 |
| 93 | 154.0 | 490.7 | 698.0 |
| 94 | 220.4 | 473.6 | 717.6 |
| 95 | 232.2 | 601.9 | 834.5 |
| 96 | 228.9 | 645.8 | 916.3 |
| 97 | 277.6 | 789.1 | 1,106.9 |
| 98 | 262.3 | 804.4 | 1,066.7 |
| 99 | 299.5 | 797.0 | 1,096.5 |
| 00 | 302.0 | 888.2 | 1,190.2 |
| 01 | 317.0 | 977.3 | 1,294.3 |
| Total | 3,242.1 | 8,718.2 | 11,960.3 |

FY 2002 EST: - \$1.5 billion

Total does not include award modifications

As in prior years, in FY 2001 SBA continued to use a system of deficits and credits to evaluate agency SBIR budgets against actual amounts obligated.

Through its SBIR Policy Directive, SBA requires each participating agency to list the number of Phase I awards made both within 6 months and after 6 months of the closing date of its solicitation announcement. Table 4 (immediately following) provides this information for FY 2001.

Table 4: FY 2001-- Phase I Time Frame

| Agency | Total FY 01 Phase I Awards | No. within 6 Months of Solicitation Close | No. More Than 6 Months After Solicitation Close |
|--------------|----------------------------------|---|---|
| DOA | 90 | 0 | 90 |
| DOC | 27 | 27 | 0 |
| DOD | 1,309 | 1,231 | 78 |
| DOE | 212 | 212 | 0 |
| DOT | 9 | 9 | 0 |
| ED | 39 | 39 | 0 |
| EPA | 40 | 40 | 0 |
| HHS | 985 | 985 | 0 |
| NASA | 287 | 287 | 0 |
| NSF | 217 | 217 | 0 |
| TOTAL | 3215 | 3,047 | 168 |

Public Law 106-554 directs each Federal agency with an SBIR program to provide annually, to the Small Business Administration, a report that includes a description of the methodology used for calculating the amount of the extramural budget of the Federal agency. Please see Table 5.

Table 5: CALCULATION OF EXTRAMURAL BUDGET
(\$ In Thousands)

| Agency Name | FY 2001 R&D Budget | Intramural Budget & Other | Extramural Budget | \$SBIR | Overall Compliance | Other Comments |
|---|--------------------|---------------------------|-------------------------|-----------|--------------------|---|
| NSF | \$3,041,603 | \$153,000 | \$2,888,603 | \$72,215 | Yes | |
| Dept. of Army | \$6,342,552 | \$887,530 | \$5,455,022 | \$136,376 | Yes | |
| Dept. of Navy | \$8,184,336 | \$3,117,243 | \$5,067,093 | \$126,677 | Yes | |
| DOT (Combined) | \$876,849 | \$656,679 | \$220,170 | \$5,504 | Yes | |
| Dept. of Energy | \$6,567,579 | \$3,046,650 | \$3,520,929 | \$88,023 | Yes | |
| Dept. of Education | \$272,967 | \$10,702 | \$262,265 | \$6,557 | Yes | |
| Dept. of Commerce (Combined) | \$702,587 | \$560,276 | \$142,311 | \$3,558 | Yes | |
| Defense Advanced Research Proj Agy (DARPA) | \$2,014,500 | \$206,450 | \$1,808,050 | \$45,200 | Yes | Reprogrammed \$42,400 to SBIR and \$5,500 to Congressionally fenced funds |
| EPA | \$573,600 | \$342,100 | \$231,500 | \$5,788 | Yes | |
| HHS | \$16,833,984 | \$3,050,000 | \$16,830,934 | \$420,156 | Yes | |
| NIST-Scientific & Technical Research & Services | \$254,741 | \$233,058 | \$21,683 | \$542 | Yes | |
| NIST-Industrial Technology Services | \$105,625 | \$14,400 | \$91,225 | \$2,281 | Yes | |
| NASA | | | \$4,189,000 (Projected) | \$104,725 | Yes | |
| US Special Operations Command | \$250,666 | | \$188,000 | \$4,700 | No | Had problems understanding its methodology |
| Dept. of Agriculture | | | | | N/A | Non-submission as of 12/14/01 |

Highlights of Cumulative Data

The SBIR program continues to receive recognition for quality performance. The following highlights accomplishments of the SBIR program since it began in FY 1983:

- More than \$11.5 billion has been awarded.
- Participating agencies received a total of 365,579 Phase I and Phase II proposals in response to 253 SBIR solicitations. A total of 64,302 Phase I (46,858) and Phase II (17,444) awards have been made.
- Minority/ disadvantaged firms have received 8,048 awards, representing 12.5 percent of all SBIR awards. The value of these awards is \$2.3 billion, representing 21 percent of all dollars awarded under the program.
- Awards have been made to firms in all 50 states, Puerto Rico and the District of Columbia.
- Several participating agencies have allocated more for this program than required by law. In accordance with the law, each participating agency will continue to award at least 2.5 percent of its R/R&D extramural budget each fiscal year.

SUCCESS STORIES

The following stories represent the most recent successes from FY 2001 SBIR awards issued by the participating Federal agencies.

UES, Inc. Dayton, Ohio

UES, Inc. (UES) is a small business established in 1973 with headquarters in Dayton, Ohio. Over UES' life, it has acquired and/or incubated a number of related companies. Each of these related companies was a division within, or a subsidiary of UES. UES has participated in the SBIR program since the program's inception in the early 1980's. They were very successful in winning SBIR awards and were the first in Ohio and among the top ten in the United States in terms of number of awards.

UES's team of top scientists engaged in Government research studies on a regular basis, spurred on by their entrepreneurial spirit to grow in their fields, is responsible for the SBIR success of UES.

Areas of UES SBIR awards include metallic and non-metallic coatings, materials process software, material characterization techniques, behavioral and physiological science, knowledge-based software, ruggedized portable computers, and advanced materials.

Many of the Phase I feasibility study awards resulted in Phase II awards. Several advanced to a Phase III commercialization stage with commercial products or services. UES is expecting two more SBIR-based business opportunities to spin off to commercial end items within the next two years.

UES has won a total of 89 Phase I SBIR awards for a total of \$5,591,990 of government funding through the end of FY 2001. From follow-on development of some of the Phase I SBIR awards, UES has been

received 24 Phase II awards totaling \$12,007,938.

One of the best measures of the success of the SBIR program is the creation of sales and associated jobs. To date, UES has received a total of \$18.47 million of government funding under the SBIR program. The commercial sales revenues from products and services as a result of these awards are over \$185 million. More than 75 jobs have been created or retained to make and market these products and services.

In its effort to commercialize the 24 Phase II innovative ideas, UES has moved six of the Phase II projects into a Phase III commercialization. In addition, four other Phase II projects are still in progress with three showing significant potential for commercial sales.

In addition, Paravant, Inc., a member of the UES family of companies, received a Phase II SBIR award with government funding of over \$500,000. Paravant, Inc., is a small company in Melbourne, Florida, that manufactures ruggedized portable computers. As a result of the successful Phase I and Phase II SBIR awards, Paravant built a working prototype system. UES purchased Paravant in 1990 and accomplished a successful commercialization of the product. Paravant sales to date have been \$140,519,564.

With target applications and technologies established for the DOD SBIR solicitations, UES has proposed Phase I SBIR feasibility studies specifically related to the Government areas of interest.

The Government has invested about \$18.5 million in SBIR awards to UES. UES, through Federal and individual taxes resulting from the SBIR and commercialization activities, has returned over \$25 million back to the Government.

Therefore, as of September 30, 2001, the financial gain to the Government from UES SBIR awards is \$7.3 million or 40 percent of the Government funding. The Government has received more taxes from UES SBIR-related business and employment than it paid to UES in SBIR awards in every year, except one, since FY 1990.

3TEX, Inc. **Cary, North Carolina**

3TEX's core technology was developed in the early 1990's at North Carolina State University's College of Textiles. Under a NASA sponsored research program, Dr. Mohamed, founder and current Chairman of 3TEX, and his colleagues invented a unique method of weaving three-dimensional fiber architectures. With licensing for the patented technology from the University, 3TEX incorporated in 1996. In 1999, the company moved the company into its current facility and started assembling three-dimensional weaving machines for its growing base of customers. Continued research and development efforts for the wide assortment of applications for this unique process have been financed largely through SBIR awards. In the past two years, 3TEX has been awarded Phase I and Phase II SBIRs totaling over \$2 million.

Since its inception, 3TEX has utilized the services of the North Carolina Small Business and Technology Development Center (SBTDC). SBTDC's Procurement Technical Assistance Center has helped 3TEX seek and secure government contracts competitively.

3TEX has grown significantly in the past two years going from a staff of 3 to its current staff of almost 60. The company recently opened a second manufacturing plant in an economically depressed area of North Carolina hiring 30 textile employees who had been laid off from other area textile mills. 3TEX has also leveraged its SBIR awards into nearly \$17 million of private and institutional investor funding.

The technology that 3TEX has developed by way of SBIR awards has led to commercialization of life saving armor products for law enforcement and military personnel; lighter and safer hulls for boat bodies; and more effective protective head and body gear for athletes. Research is in progress in the areas of medical surgical closures and grafts, stronger yet lighter auto body parts, lighter more "hit" resistant armored personnel carriers and tanks, recreational and military marine applications, and lightweight structures for aerospace applications.

ACCURATE AUTOMATION CORPORATION **Chattanooga, Tennessee**

Accurate Automation Corporation (AAC) is an aerospace/computer systems company doing research and development in supersonic and hypersonic aircraft and associated technologies. Accurate Automation was founded in 1985 to design innovative technologies. The company won their first SBIR award when they submitted their first proposal to the Department of Defense. AAC started with the emerging computational technology of neural networks. Today AAC is developing a cutting edge technology that can dramatically reduce drag and improve performance for supersonic aircraft and missiles.

AAC has received a number of Phase II awards. These awards have resulted in Phase II projects that have enable the company to grow and prosper. An example project is the telemetry system for NASA Hyper-X. This system is being incorporated into a subsonic testbed that will fly early next year. AAC has commercialized its neural network technology through high performance computer boards and licensed software that are used on personal computers, aircraft avionics, High Performance 3-D Workstations and Project Supercomputers. Other Phase IIIs have been with major corporations like Silicon

Graphics, Boeing and Lockheed. Accurate Automation has also worked with a number of universities.

Accurate Automation has developed the LoFLYTE, HyFLYTE, and GLOV demonstrator aircraft. LoFLYTE is a jet powered Remotely Piloted Vehicle (RPV) providing valuable information about the performance of a hypersonic shape in subsonic regimes. LoFLYTE is being developed for NASA, the United States Air Force, the United States Navy, and the National Science Foundation. HyFLYTE is a Mach 10 shape being developed to test the subsonic handling capabilities of the Hyper X shape. HyFLYTE is being developed for the Air Force Research Lab and NASA. GLOV is an observation vehicle built and flown to test the capabilities to fly over a battlefield for the Naval Surface Warfare Center and the Naval Sea Systems Command.

The SBIR program has allowed Accurate Automation to grow from a two-person company first located in a 450 square-foot to a company of thirty-five employees and five consultants that occupies over 13,000 square feet of a 21,000 square-foot facility.

AAC has been active in encouraging new companies to participate in the SBIR program.

GENERAL INFORMATION

Publications Update

All publicly distributed SBIR documents have been updated and are available on the SBA's electronic bulletin board, SBA On-Line. The bulletin board can be accessed 24 hours a day via modem or the Internet, eliminating the printing, mailing and storage costs previously incurred for SBIR publications. Information is published on the bulletin board at the same time it is available in hard copy.

National Conferences

The Department of Defense and the National Science Foundation sponsored SBIR conferences in FY 2001 in Washington, DC; Seattle, Washington; and Tulsa, Oklahoma.

General Information

The SBA has offices located throughout the United States. For the one nearest you, look under "U.S. Government" in your telephone directory, or call the SBA Answer Desk at (800) 8-ASK-SBA. To send a fax to the SBA, dial (202) 205-7064. For the hearing impaired, the TTD number is (704) 344-6640.

To access the Agency's electronic public information services, you may call the following:

- SBA On-Line: electronic bulletin board
modem and computer required:

(800) 697-4636 (limited access)

(900) 463-4636 (full access)

(202) 401-9600 (DC metro area)

- Internet: using uniform resource locators URLs
- SBA Home Page:
<http://www.sba.gov/sbir>
- SBA gopher: <gopher://gopher.sba.gov>
- File transfer protocol: <ftp://ftp.sba.gov>
- Telnet: <telnet://sbaonline.sba.gov>
- U.S. Business Advisor:
<http://www.business.gov>

You also may request a free copy of The Resource Directory for Small Business Management, a listing of for-sale publications and videotapes, from your local SBA office or the SBA Answer Desk.

U. S. Small Business Administration

Total SBIR Awards for FY 2001

| State | Number of Phase 1 Awards | Phase 1 Dollars | Number of Phase 2 Awards | Phase 2 Dollars | Total Awards | Total Dollars |
|----------------------|--------------------------|-----------------|--------------------------|-----------------|--------------|---------------|
| Alabama | 63 | \$5,476,457 | 18 | \$9,148,073 | 81 | \$14,624,530 |
| Alaska | 4 | \$332,249 | 1 | \$398,202 | 5 | \$730,451 |
| Arizona | 68 | \$5,986,112 | 25 | \$16,000,518 | 93 | \$21,986,630 |
| Arkansas | 9 | \$948,444 | 0 | \$0 | 9 | \$948,444 |
| California | 612 | \$61,816,522 | 321 | \$196,764,586 | 933 | \$258,581,108 |
| Colorado | 147 | \$13,369,984 | 70 | \$42,379,164 | 217 | \$55,749,148 |
| Connecticut | 56 | \$5,334,735 | 26 | \$11,855,073 | 82 | \$17,189,808 |
| Delaware | 11 | \$1,015,079 | 8 | \$4,617,900 | 19 | \$5,632,979 |
| District of Columbia | 11 | \$1,086,104 | 5 | \$2,632,000 | 16 | \$3,718,104 |
| Florida | 67 | \$5,991,066 | 33 | \$17,579,360 | 100 | \$23,570,426 |
| Georgia | 34 | \$3,567,711 | 14 | \$8,586,993 | 48 | \$12,154,704 |
| Hawaii | 14 | \$1,650,317 | 2 | \$1,574,692 | 16 | \$3,225,009 |
| Idaho | 13 | \$1,152,399 | 1 | \$727,332 | 14 | \$1,879,731 |
| Illinois | 49 | \$5,348,781 | 26 | \$14,596,453 | 75 | \$19,945,234 |
| Indiana | 20 | \$1,723,605 | 8 | \$3,450,950 | 28 | \$5,174,555 |
| Iowa | 10 | \$1,029,836 | 3 | \$1,051,000 | 13 | \$2,080,836 |
| Kansas | 14 | \$1,254,140 | 6 | \$2,071,094 | 20 | \$3,325,234 |
| Kentucky | 8 | \$859,000 | 4 | \$1,486,751 | 12 | \$2,345,751 |
| Louisiana | 13 | \$1,169,252 | 4 | \$1,800,422 | 17 | \$2,969,674 |
| Maine | 9 | \$777,214 | 4 | \$2,478,918 | 13 | \$3,256,132 |
| Maryland | 164 | \$16,334,967 | 71 | \$37,595,495 | 235 | \$53,930,462 |
| Massachusetts | 419 | \$42,513,814 | 214 | \$125,013,653 | 633 | \$167,527,467 |
| Michigan | 55 | \$5,361,277 | 29 | \$16,470,305 | 84 | \$21,831,582 |
| Minnesota | 46 | \$4,389,237 | 18 | \$10,491,465 | 64 | \$14,880,702 |
| Mississippi | 6 | \$511,322 | 1 | \$150,750 | 7 | \$662,072 |
| Missouri | 13 | \$1,274,957 | 3 | \$1,640,000 | 16 | \$2,914,957 |
| Montana | 20 | \$1,700,694 | 11 | \$6,032,492 | 31 | \$7,733,186 |
| Nebraska | 8 | \$750,703 | 3 | \$1,622,000 | 11 | \$2,372,703 |
| Nevada | 10 | \$850,133 | 5 | \$3,666,822 | 15 | \$4,516,955 |
| New Hampshire | 47 | \$4,205,184 | 16 | \$9,248,606 | 63 | \$13,453,790 |
| New Jersey | 85 | \$8,255,926 | 41 | \$23,040,225 | 126 | \$31,296,151 |
| New Mexico | 66 | \$6,193,559 | 28 | \$15,837,248 | 94 | \$22,030,807 |
| New York | 114 | \$11,256,565 | 49 | \$27,013,905 | 163 | \$38,270,470 |
| North Carolina | 41 | \$4,703,718 | 19 | \$9,031,901 | 60 | \$13,735,619 |
| North Dakota | 5 | \$456,378 | 2 | \$1,017,241 | 7 | \$1,473,619 |
| Ohio | 129 | \$13,076,368 | 56 | \$35,886,180 | 185 | \$48,962,548 |

Total SBIR Awards for FY 2001

| State | Number of Phase I Awards | Phase I Dollars | Number of Phase II Awards | Phase II Dollars | Total Awards | Total Dollars |
|----------------|--------------------------|-----------------|---------------------------|------------------|--------------|---------------|
| Oklahoma | 13 | \$1,408,382 | 4 | \$1,799,613 | 17 | \$3,207,995 |
| Oregon | 38 | \$3,463,198 | 25 | \$10,770,263 | 63 | \$14,233,461 |
| Pennsylvania | 110 | \$10,684,615 | 57 | \$31,951,373 | 167 | \$42,635,988 |
| Puerto Rico | 0 | \$0 | 0 | \$0 | 0 | \$0 |
| Rhode Island | 11 | \$1,381,436 | 6 | \$3,268,761 | 17 | \$4,650,197 |
| South Carolina | 15 | \$1,394,147 | 5 | \$3,474,861 | 20 | \$4,869,008 |
| South Dakota | 4 | \$358,846 | 1 | \$363,000 | 5 | \$721,846 |
| Tennessee | 31 | \$2,892,955 | 13 | \$7,825,741 | 44 | \$10,718,696 |
| Texas | 119 | \$10,862,103 | 54 | \$30,597,884 | 173 | \$41,459,987 |
| Utah | 30 | \$2,897,710 | 14 | \$6,795,611 | 44 | \$9,693,321 |
| Vermont | 7 | \$667,584 | 4 | \$1,992,040 | 11 | \$2,659,624 |
| Virginia | 184 | \$17,183,934 | 85 | \$54,407,580 | 269 | \$71,591,514 |
| Washington | 60 | \$6,006,276 | 43 | \$23,115,708 | 103 | \$29,121,984 |
| West Virginia | 4 | \$339,774 | 5 | \$3,413,541 | 9 | \$3,753,315 |
| Wisconsin | 41 | \$4,538,006 | 15 | \$8,022,429 | 56 | \$12,560,435 |
| Wyoming | 9 | \$716,923 | 3 | \$1,221,000 | 12 | \$1,937,923 |

Dollar amounts reflect actual dollars